THE ROLE OF THE EXTENSION SERVICE

IN

The Evolution and Development of a New Insecticide*

The role of the Extension Service in the evolution and development of a new insecticide might be stated very briefly as follows: To acquaint the public with new insecticides by use of all educational media. To do this, however, involves more than merely extending such information through the press, radio, television, pictures, bulletins, circulars, circular letters, meetings, and demonstrations. At least, that is the information I gathered by talking with a great many entomologists and extension workers, since I was invited to discuss this topic. The entomologists with whom I talked represented the State Experiment Stations, industry, the Bureau of Entomology and Plant Quarantine, and the State Extension Services. Without exception they stated that the Extension Service had a most important part in the development of a new insecticide. They cited many examples of Extension's role which I shall discuss later.

Extension workers naturally turn to the Smith-Lever and supplemental acts to guide us in our over-all functions. These are the acts that provide for the Federal-State Cooperative Extension Service. These acts charge us in Extension with the responsibility of providing useful and helpful information, in the field of agriculture and home economics, to the people of the United States. More than that it sets it as our job to encourage the application of this information and knowledge by the people. The act tells us we can do these two jobs through field demonstrations, publications, and otherwise as mutually agreed upon by the Secretary of Agriculture and the State Land-Grant College or college receiving the benefit of the Act.

The formulators of the Act undoubtedly had demonstrations firmly in mind as one of Extension's primary teaching methods. But the phrase "and otherwise" opens the way for whatever method would best serve the purpose and eliminates confusion as to the extent of the twilight zone between a demonstration and an experiment. The Extension Service has no thought, however, of usurping the authority of the Experiment Stations by conducting experiments with many replicates.

They work with more than 4½ million farm families each year and as a result of such contacts get to know local conditions pretty well. They often detect the need for an insecticide to meet a certain set of conditions. Such information is passed to research people providing them with a basis for developing an insecticide to meet the need.

*Presented at the Pacific Branch Meeting, Entomological Society of America, June 23, 1953 as part of a panel covering the Role of Research (State, Federal & Industrial), Regulation, Extension and Commercial Sales, in the Evolution and Development of a New Insecticide.

783 (7-53)

There are not enough research entomologists in public or private agencies to test the some forty thousand registered insecticides for use on several thousand different kinds of insects under all the local and climatic conditions in this country. This necessitates the closest cooperation between extension workers and research entomologists in the field testing of the newer insecticides. There are many cases where research has proven the merits of an insecticide, but because the work was done in a slightly different area or on a species of insect only slightly different from the one in question local adaptations of the product are necessary before it can be generally recommended in the area. After the research and extension entomologists have considered the problem it may be decided that the extension entomologists and the county agents should arrange for some "test demonstrations" with a few farmers in one or more counties. These can be supervised and checked very closely by the extension worker and may not require the immediate supervision of the research entomologist. The complete situation should be explained to the farmer so that he will treat only a small portion of his total acreage planted to a particular crop. By close supervision and observation of such demonstrations the insecticide in question is given a fair test under farm conditions. Any unfavorable results that may develop because of improper dosage or improper application can be observed and explained to farmers at the time of meetings held in connection with the demonstration or in other extension meetings. Such tests may also reveal any inadequacies of the new insecticide when used under a different set of conditions from that of its previous use. Difficulties can be relayed to the research entomologists or to the manufacturer, so that the necessary adjustments can be made by the company formulating the product. Extension workers, however, should be reasonably sure of the outcome of such test demonstrations because they must strive for positive results or have a satisfactory explanation of results that are not positive. Their situation is unlike the research worker where negative results are, at times, as important as postive results.

There are cases where farmers have learned of new insecticides and intend to use them. They do, however, seek the guidance of the extension workers in the use of these materials. Under such conditions the extension worker has no alternative than to give the farmer the best possible advice concerning the use of the insecticide.

In some cases insecticide companies prevail on county agents to cooperate with them in the field testing of insecticides. The agents must use discretion in such cases, however, and consider the judgment of the extension and experiment station entomologist, especially if the agent's training in entomology has not been too extensive.

Insecticide companies sometimes set up test plots direct with the farmers. Extension workers may or may not be aware of these when they are set up, but sooner or later the county agents are asked about these tests. The commercial people with whom I have talked stated that even though they have carried on such tests they realize that the best way to get public acceptance and use of a new material, is to have the approval of research entomologists in public positions through the extension people. This is especially true of agricultural insecticides. This situation makes it all the more necessary that these people in public positions be kept informed of the field tests being conducted by industrial people.

The public has more confidence in the person who knows his subject matter and can interpret it in terms of the public needs. An extension worker must, therefore, be thoroughly familiar with, and believe in the merits of the new insecticide in order to get its full use established. There is no better way for them to get acquainted with a product than to work with it in field tests. This in itself justifies the extension worker making field tests of insecticides before recommending them generally, especially if he has not had an opportunity to observe the work done by the research worker.

Extension workers are often asked about new insecticides that have been registered under the State and Federal Insecticide Laws. The public is inclined to consider the acceptance of an insecticide for registration as a recommendation. This is not the case, however, so far as the Federal Law is concerned. The notice of registration under the Federal Insecticide, Fungicide and Rodenticide Law states, in part, that "Registration of the product is in no way to be construed as an endorsement or approval by the Department of any claims made for it. The labeling must not bear any reference to registration under the Act". The Federal Act prohibits the interstate shipment of unregistered insecticides. Advertising or offering for sale unregistered insecticides moving in interstate commerce is in violation of the law. Claims made in advertising after an insecticide is registered cannot differ in substance from the representation made in connection with the registration. These provisions are a big help to workers in the extension field. There are cases of advertising, however, that embarrass extension workers. For instance, a product may be registered for restricted use as to pest, location, or as to the period of development of the host of the pest. When products so registered are advertised nationally, the public sometimes fails to place the proper interpretation on the advertising. The county agents outside the area are besieged with questions as to why the product advertised is not included in the recommendations made by State or county people.

This situation makes it all the more necessary that extension workers be kept informed of the insecticides that have been accepted for registration and the uses for which they have been registered. Good working relations between extension workers and State and county people who are charged with the enforcement of the insecticide laws must be maintained at all times.

Officials registering insecticides may not take into account the economical use of the product to the same extent as would the extension entomologist in his recommendation to the public. The extension worker has to consider insect control and the use of insecticides in the over-all problems of economic production. Registration officials are more interested in the performance of the product in accordance with the claims made for it.

In a desire to help farmers with the most economical production, extension workers may sometimes fail to realize that industry has often screened 1,800 chemicals in order to find one that has desirable insecticidal qualities. They have possibly spent a third of a million dollars in the development of the insecticide and another two-thirds of a million before it is placed on the market. They are endeavoring to recover the expenditure by the sale of the product. The price per unit of the insecticide consequently may appear high when it is first offered for sale. They will not, however, stay out of line price-wise very long because of competition with other materials.

Research workers both public and private screen many chemicals to find better insecticides, but the final or real screening of an insecticide, as to its ultimate use, is done by the farmer. We have seen insecticides that show considerable promise until they get into the field. After a short time, they pass out of the picture. By having close contact with the use of such materials, extension workers often are able to determine the reason for a lack of acceptance of such products and give such information to experiment station or industrial people.

To help introduce a new insecticide, extension people may conduct tours to experimental plots. In such cases, farmers can observe the results obtained from use of the new insecticides while they are still in their experimental stage.

Extension entomologists cooperate with other college and experiment station people in conducting short courses or training schools for insecticide dealers and commercial applicators. These are to cover the over-all insect control recommendations including the newer materials. Some work has been done and more needs to be done to help the local dealers to better understand insect control and to outline the place of the new insecticides for use under the conditions in their area. Such meetings should be on a district, county or local basis and include the dealers and clerks who sell insecticides.

County extension workers are much better qualified to cope with the problems relating to insect control than they were some years ago. They have a much better background in entomology. This is due in part to more and better academic training and in part to the fact that practically all of the major agricultural States now employ one or more extension entomologists. There are also more entomologists in research, and in developmental or promotional work with commercial companies who make contacts with the county agents. Working relations between extension people and regulatory and control officials have greatly improved during recent years. This is mutually helpful to everyone concerned.

The evolution and development of new insecticides in order to reduce the enormous losses caused by insect pests is not the job for any one person or any one group. It requires the fullest cooperation of everyone that works with the public in combating pests.